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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,180	05/30/2001	Kenneth L. Smith	54538USA9B011	7800

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EXAMINER	
GOFF II, JOHN L	

ART UNIT	PAPER NUMBER
1733	3

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/870,180	Applicant(s) SMITH ET AL.
	Examiner John L. Goff	Art Unit 1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing.date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 May 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 25 is objected to because of the following informalities: It appears claim 25 should depend from claim 23 not claim 24. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 24 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claims 24 and 34, the phrase "upper portions of the structured surface" is unclear and confusing. It is uncertain what is meant by "upper portions". Does it mean the upper regions of the cube corner cavities are covered with the flowable composition? Does it mean the cube corner cavities are completely covered with the flowable composition? This issue should be clarified and reworded as appropriate.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 22-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rowland (U.S. Patent 3,810,804) in view of McGrath (U.S. Patent 4,025,159).

Rowland is directed to a method of making retroreflective material. Rowland teaches a method comprising providing a body portion having a structured surface that includes recessed faces defining a plurality of cube corner cavities, applying a reflective coating to the structured surface, applying a flowable, pressure-sensitive adhesive to the structured surface, and laminating a releasable sheet to the structured surface (Figure3 and Column 4, lines 42-50 and Column 7, lines 63-70 and 74-75 and Column 8, lines 1-2). Rowland further teaches removing the releasable sheet to mount the reflective material on another surface. It is noted Rowland does not specifically recite the pressure sensitive adhesive as transparent. However, one of ordinary skill in the art would have readily appreciated that the pressure-sensitive adhesive is transparent in order for the material to act as a retroreflective material.

Regarding claims 22 and 31, Rowland is silent as to using a radiation curable pressure-sensitive adhesive. However, one of ordinary skill in the art at the time the invention was made

would have readily appreciated using as the pressure-sensitive adhesive taught by Rowland a radiation-curable pressure-sensitive adhesive as shown by McGrath in order to form a retroreflective article with improved adhesion between the structured surface and the releasable sheet/mounting surface.

McGrath is directed to cellular retroreflective sheeting. McGrath teaches a base sheet having a structured surface that includes recessed faces defining a plurality of cube corner cavities (Figures 6-8 and Column 6, lines 10-20). McGrath teaches coating the base sheet with a radiation curable acrylic adhesive (Figures 6-8 and Column 4, lines 57-60). McGrath teaches applying a cover film to the base sheet. McGrath teaches applying radiation to the sheet to cure the adhesive. McGrath teaches that using a radiation curable adhesive improves the adhesion between the base film and the cover film (Column 1, lines 16-35 and 43-46).

Regarding claim 25, Rowland is silent as to applying the adhesive to the structured surface using a cover layer (releasable sheet) that includes the adhesive. It is conventional in the art to apply adhesive to a structured surface by directly applying the adhesive to the surface or using a cover layer to apply the adhesive as evidenced by McGrath. McGrath teaches applying the radiation curable adhesive to the structured surface by directly applying the adhesive to the surface or using a cover layer comprising the adhesive (Column 6, lines 10-20). It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to apply the adhesive taught by Rowland using a releasable sheet containing the adhesive as suggested by McGrath as only the expected results would be achieved.

Regarding claims 28 and 29, Rowland is silent as to incompletely filling the cube corner cavities. One of ordinary skill in the art at the time the invention was made would have readily

appreciated that when applying the adhesive to the structured surface some air would be trapped and the cavities would be incompletely filled resulting in a later settling of the adhesive.

Regarding claim 30, Rowland as modified by McGrath are silent as to the degree the radiation curable pressure-sensitive adhesive is cured/crosslinked prior to its application to the structured surface. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated that an adhesive crosslinked to a higher degree prior to its application would reduce the processing/cure time required after its application and thus, improve production efficiency.

8. Claims 22-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chau et al. (U.S. Patent 5,735,988) in view of Rowland (U.S. Patent 3,810,804).

Chau et al. are directed to a method for making optical elements. Chau et al. teach a method comprising providing a body layer (replica surface topography) having a structured surface, applying a reflective coating to the structured surface, applying an at least partially transparent, flowable, and radiation curable adhesive to the structured surface, and laminating a substrate to the structured surface (Figures 1C-1F and Column 5, lines 57-65 and Column 6, lines 6-16). Chau et al. further teach applying the adhesive by first coating the substrate and then, applying the coated substrate to the structured surface (Column 6, lines 20-21). It is noted Chau et al. do not specifically recite the radiation curable adhesive as also pressure-sensitive. However, one of ordinary skill in the art would have readily appreciated that acrylic based radiation curable adhesives would include acrylic pressure-sensitive adhesives particularly when the optical elements are laminated to a substrate.

Regarding claim 1, Chau et al. are silent as to the structured surface including recessed faces defining a plurality of cube corner cavities. It is noted Chau et al. teach the structured surface may include any type of surface topography (Column 5, lines 16-21). Furthermore, it is well known in the art to form a structured surface for an optical element with a topography comprising recessed faces defining a plurality of cube corner cavities as shown by Rowland. One of ordinary skill in the art at the time the invention was made reading Chau et al. in view of Rowland would have readily appreciated using as the surface topography taught by Chau et al. a topography comprising recessed faces defining a plurality of cube corner cavities as suggested by Rowland as only the expected results would be achieved.

Rowland is directed to a method of making retroreflective material. Rowland teaches a method comprising providing a body portion having a structured surface that includes recessed faces defining a plurality of cube corner cavities, applying a reflective coating to the structured surface, applying a flowable, pressure-sensitive adhesive to the structured surface, and laminating a releasable sheet to the structured surface (Figure3 and Column 4, lines 42-50 and Column 7, lines 63-70 and 74-75 and Column 8, lines 1-2). Rowland further teaches removing the releasable sheet to mount the reflective material on another surface. It is noted Rowland does not specifically recite the pressure-sensitive adhesive as transparent.

Regarding claims 27 and 28, Chau et al. are silent as to applying the optical element to a substrate wherein the substrate is a releasable liner. However, one of ordinary skill in the art at the time the invention was made would have readily appreciated using as the substrate taught by Chau et al. a releasable liner as suggested by Rowland as it is conventional in the art to apply the

optical element to a releasable liner when the optical element is not permanently mounted during production of the element.

Regarding claims 28 and 29, Chau et al. are silent as to incompletely filling the cube corner cavities. One of ordinary skill in the art at the time the invention was made would have readily appreciated that when applying the adhesive to the structured surface some air would be trapped and the cavities would be incompletely filled resulting in a later settling of the adhesive.

Regarding claim 30, Chau et al. are silent as to the degree the radiation curable pressure-sensitive adhesive is cured/crosslinked prior to its application to the structured surface. Absent any unexpected results, one of ordinary skill in the art at the time the invention was made would have readily appreciated that an adhesive crosslinked to a higher degree prior to its application would reduce the processing/cure time required after its application and thus, improve production efficiency.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

John L. Goff
December 12, 2002

Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700